

Care of the Neglected Burn Patient

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SUMMARY

In spite of widely dispersed modern knowledge of burn treatment, neglect or inept care of severely burned patients continues as a cause of a considerable medical problem. Since the neglected patient is usually emaciated, pain-ridden and low in morale, prompt attention to rehabilitation through blood transfusions, nourishment, relief of pain and cleansing of the wound is mandatory. Skin grafting as soon as possible is the aim.

PATIENTS who have been burned many months or even years before and are still unhealed are observed in the everyday practice of reconstructive surgery. Such patients are usually in an extremely debilitated condition and desperately ill. Heroic effort is necessary to help them to survive at all. Primary care of them may require several months and late reconstructive operations may extend over a period of years.

In many cases, the patient himself is responsible for the neglect of even severe burns. Religious fanaticism, ignorance, or a generally uncooperative attitude may have caused him to shun treatment. Also, feeble-minded, epileptic or insane persons may be burned severely yet not seek medical care.

All too often, however, errors on the part of physicians and nurses have created the gross physiological catastrophe which occurs with neglect of a severe burn. The commonest errors responsible for the condition of the patient include, from a general standpoint, a complete lack of understanding of the metabolism of patients with burns, the withholding of proper fluids and blood transfusions, neglect of diet and often the misuse or withholding of the various chemotherapeutic and antibiotic agents. The physician may be so hurried that he relegates the time-consuming dressings to the less experienced interns and residents or to nurses, orderlies and aides. In addition, because of the extremely high cost of care of a serious burn, all but the wealthiest patients are channeled to the larger wards where adequate care may be much more difficult.

Nursing errors and neglect are common. The patient who is weak and debilitated and scarcely able to feed himself, or the patient with severely burned hands, for example, may be denied proper nourishment because no one will take the time necessary to see that he gets an adequate diet. In addition to this, an extremely burned patient presents a difficult problem in morale. Because his dressings are mal-

odorous and he cries and screams with pain when attempt is made to help him, he may be quickly classified by the attending nurses and doctors as "difficult" or "impossible," and neglect may ensue. Special nurses often refuse to attend patients with burns, thereby handicapping the physician, the patient and the nurses on general duty.

Ineptitude in the local care of the burned area is often responsible for the extremely poor morale of the patient and for much of the difficulty in taking care of him. The commonest error is the use of coarse-mesh gauze next to the granulating surfaces. This practice, which has been universally condemned by those caring for large numbers of patients with burns, results in the budding of granulations through the meshes of the dressings. Since removal of this gauze causes pain, bleeding and destruction of new epithelium, dressings are made less frequently than is desirable. Granulations then grow farther into the gauze. It is not uncommon to encounter patients who have been given general anesthesia every third or fourth day over a period of many weeks for change of dressings. The odor and general surgical uncleanness of soiled dressings is offensive to the patient and results in decreased appetite. Irrigation of the dressings with saline, boric or mild Dakin's solution through catheters in the dressings does not compensate for needed change of dressings.

The local application of various burn dressings, oils, pastes, powders and other "cure-all" preparations has been advocated continuously since the time of Hippocrates. The very number of such therapeutic agents indicates that none of them has really settled the problem; one must turn, as always, to the basic physiological surgical principles of the care of any open wound.

Poor dressing technique is the rule rather than the exception in the care of extensive burns. Continual contamination and reinfection from the fingers and nose and throat of those who change or observe the dressings is all too frequent and a factor which considerably prolongs morbidity. In critical cases, such added infection may cause death.

The results of skin-grafts attempted by surgeons without particular training for the operation vary greatly in the degree of success. The commonest errors here are poor choice in type of skin-graft used and poor judgment in the amount of skin taken or in choosing the bed on which to apply the graft. The intact skin on a seriously burned patient is a very precious commodity upon which future function and even life itself will probably depend. To scar such an area and render it unfit for further use by such a crude method as "pinch-grafting" is certainly to be profoundly condemned (Figure 1).

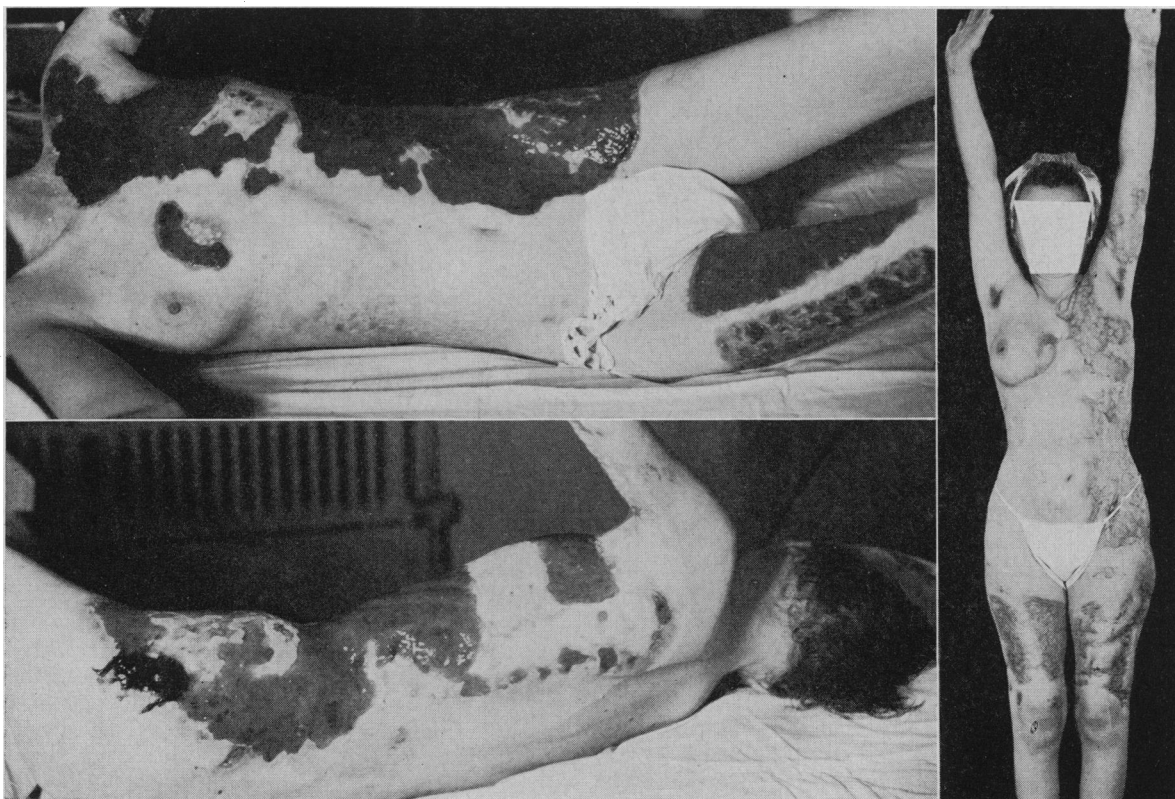


Figure 1.—*Upper left*: Burn occurred seven months before picture was taken. Destruction on thighs from too deep graft removal. Flank scarred by inept pinch-grafts and rendered unfit for future donor site. *Lower left*: Posterior view same patient. Note decubitus ulcers and wasting. *Right*: Same patient one year later. "Patch-grafts" were lifesaving in this instance.

Likewise, it is poor judgment to use the dermatome to take too many large sheets of skin and thus open an additional large surface area to bacterial contamination, oozing and drainage on a person who has already lost a considerable area of skin. This overzealous treatment may tip the scales unfavorably in the direction of failure and catastrophe. The risk of loss of such large sheets of skin, when applied as a continuous sheet on a dirty granulating surface, is considerable. If loss occurs it is tragic, for there may be no further chance to cover the burned areas with skin. When the burned area is relatively small, involving, say, one extremity or a large area on a flank, it is certainly desirable to cover the granulating surface with continuous sheets of skin. This practice by one familiar with the technique, who places the skin on a bed which is ready to receive it, results in the most prompt healing known for burns. On more extensive burns, however, it would be foolhardy to try to cover completely the granulating surfaces with continuous sheets of skin, since the amount of donor skin necessary might be so great as to be incompatible with survival (Figure 2). In such cases, the cutting of the thick-split sheet of skin-graft into smaller pieces and applying them in the "flag-stone" manner (Figures 1, 2 and 3) results in rapid clean-up of the infected areas. This plugs the life-sapping leak of important serum and plasma.

Indiscriminate use of the dermatome in inexperienced hands can have tragic results. On many patients, particularly children whose skin is thin, a graft is often taken so thick that there is no hope that re-epithelialization and healing can take place in the donor site (Figure 1). Thus, the already seriously burned patient has an additional area of third degree loss of skin.

CLINICAL CHARACTERISTICS

Fetor, the gauntness associated with chronic debilitating disease, stiffness of the joints, poor morale, fever, anemia and anorexia—these are clinical conditions typical of the patient with neglected severe burns. Such a patient may cry out if a gesture is made toward the burned area. Available donor sites for skin are usually exceedingly scanty due to the wasting of the skin and subcutaneous tissues and often to previous ill-fated skin-grafting. Contractures may have caused ectropion, elevated alae of the nose, chondritis and crumpling of the ears, and contractures about the lips and around the joints of the extremities. These contractures limit movement. Decubitus ulcers are exceedingly common. Granulations are usually pale and often dirty and boggy. Superficial venous thromboses are not uncommon in the extremities, with edema of hands and feet due to faulty venous and lymphatic return flow and to hypoproteinemia.

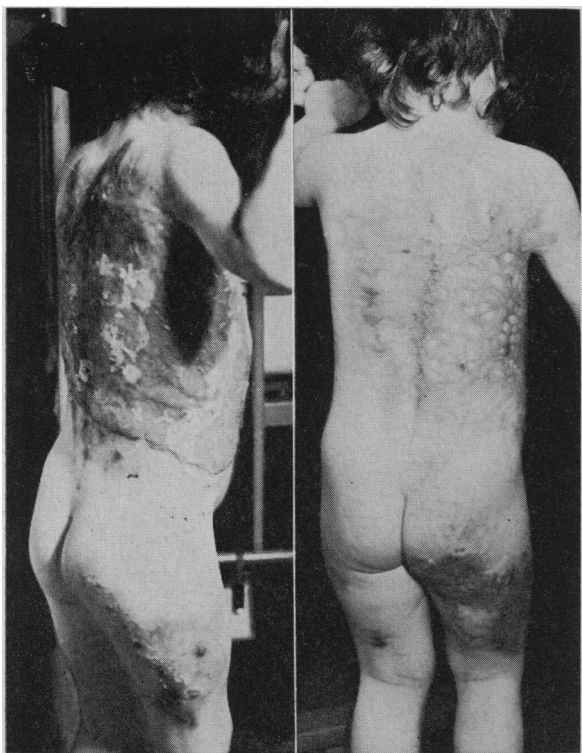


Figure 2.—*Left:* Flank and thigh severely burned four months before this picture. Donor areas very scarce. *Right:* Two months and 24 days later. Entirely healed by "patch-grafting." Later release of scar and recovering of areas can be performed with continuous sheets of skin on a sterile recipient area and on a well patient instead of a debilitated one.

Such patients are often already addicted to morphine. Their appetite is exceedingly poor and they have lost the will to live. They continually find fault with everything around them. They have usually found a position in which they are the least uncomfortable and they stick fanatically to this one position, trying not to move for fear of hurting themselves. Laboratory studies show extreme degrees of anemia and hypoproteinemia. Although blood levels of vitamins and of hormones are not ordinarily measured, levels undoubtedly would be found to be greatly below normal values.

TREATMENT

The general care of patients with neglected burns can be summarized as providing adequate nutrition and good morale. If nutrition is adequate, good morale normally follows. Transfusion with rather large amounts of whole blood has been found to be the most effective single method for restoration. An initial transfusion of 1,000 cc. of whole citrated blood in an adult is usually followed by daily transfusions of 500 cc. until the patient is ready for skin-grafting ten days to two weeks after the time of first examination. As skin-grafting is completed and the open surface areas diminish, the amount of blood is correspondingly diminished but is kept up so that a sustained high level of blood proteins and of hemoglobin is maintained. In addition, of course,

the antibodies and other factors carried in the donor blood are of value to the patient. In a recent case, 55 consecutive blood transfusions were necessary before grafting was completed and the patient restored to a completely epithelialized and balanced state. The patient had appeared moribund when first observed.

As blood transfusions are only a crutch to be used until the body can again supply its own proteins and hemoglobin, adequate diet is a major factor in restoration. A diet high in proteins, vitamins and calories (4,000 to 4,500 daily) is essential. If appetite lags so that adequate dietary intake is impossible, gavage may be necessary. Dietary stimulants are of considerable help but they are of little value until the patient has been given enough blood by transfusion to permit a beginning of return to normal processes. Large doses of vitamins will do more than any other one factor to stimulate appetite, but the use of alcoholic beverages should not be overlooked. Beer, ale, stout, cocktails and highballs all have their place in stimulating appetite. Beer is used with great success in children, who rapidly learn to like its flavor. Having a bottle of beer before lunch and before dinner will often stimulate them to eat a good meal. Although a great deal of work has been done on the use of artificial proteins (amino-acids) intravenously, there is no substitute for the autogenic manufacture of proteins and amino-acids by the body itself through the alimentary tract. All dietary supplements can and should be used, however, until normal consumption of food is resumed.

Dressings on the burned areas must be soothing and must be such as to give egress to the excretory products of the granulating surfaces. At the first dressing, the patient is put into a bathtub, dressings and all, and allowed to soak in normal saline so that the removal of dressings is relatively painless (Figure 3). The use of a gallon of 2 per cent Dakin's solution in such a tubful of water has also been found to be of definite value in hastening the clean-up of granulating surfaces.

Following removal of the dressings in the tub of normal saline, the burned area is redressed with fine-mesh gauze which has been impregnated with a paraffin and vaseline mixture known as "parawax." The mixture is approximately two parts of vaseline to one part of paraffin and is waxy in consistency so that it does not macerate new epithelium. As it does not become oily and soak into the dressings, the surface lubricating effect is not lost as often happens in the case of vaseline gauze.

The patient is kept in bed with parawax gauze dressings in place until the following day. He is then placed in the tub again and while he is there the dressings are removed and fresh dressings applied. In addition, exercise of joints is carried out in the tub, lessening the period of later rehabilitation. Because of the factor of bacterial contaminants in the tub, spikes of fever following the first few days of tubbing are not unusual. The temperature-regulating mechanism of burn patients is considerably

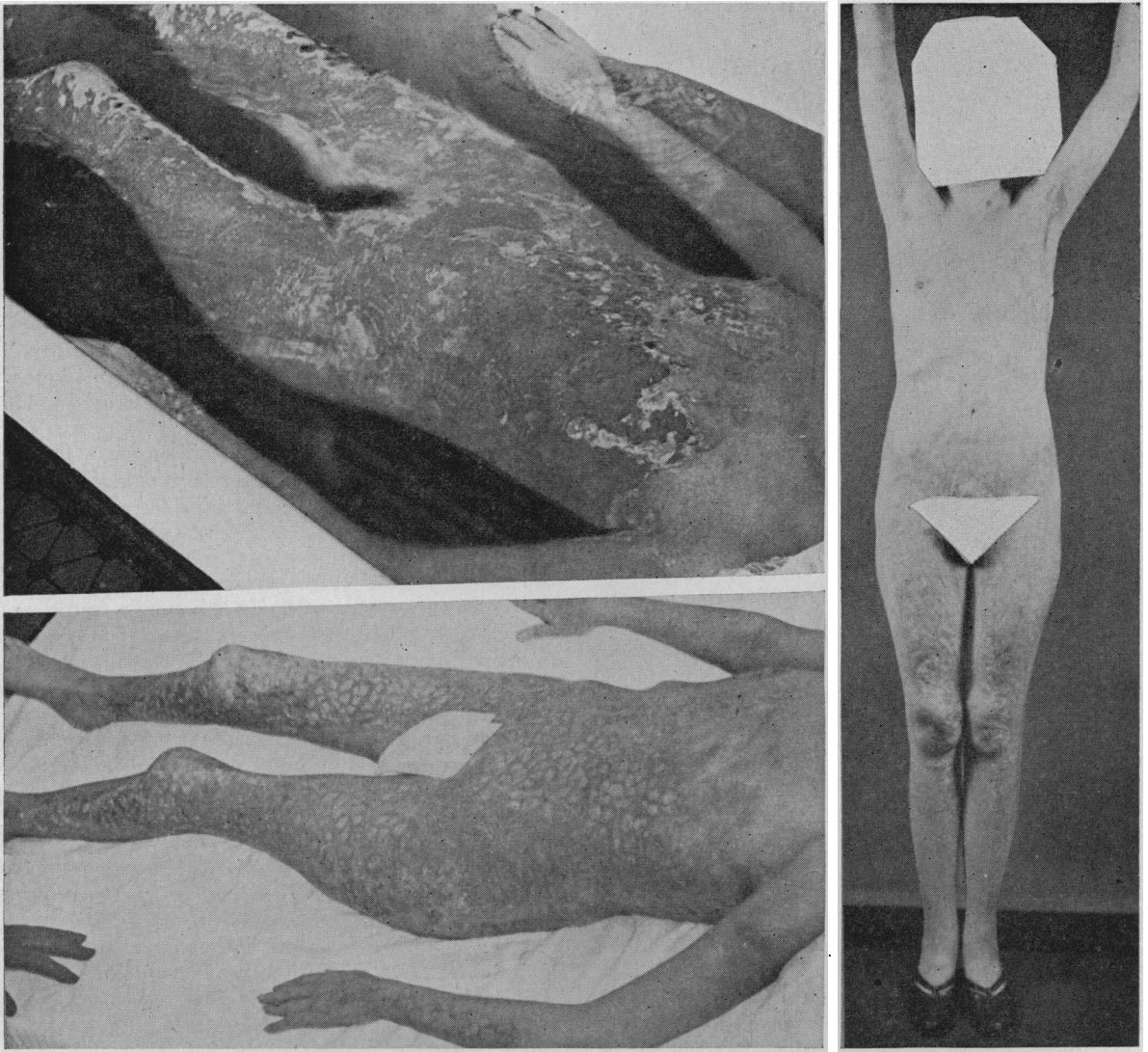


Figure 3.—*Upper left:* Tubbing an extensively burned patient in normal saline. Painless change of dressings with patient in tub greatly aids morale and appetite. *Lower left:* Same patient several weeks after burns have been covered by "patch-graft" technique. *Right:* Six months later. Note excellent nutrition and range of motion of arms and legs.

distorted by destruction of sweat glands over large surfaces of the body and by the presence of large dressings which prevent normal evaporation and cooling. Alcohol rubs, ice compresses to the head, cool water enemas, etc., are indicated if temperature spikes rise too high.

All of the procedures for the local and general care of the severely burned patient are directed toward one point—the application of skin-grafts to the denuded areas as soon as possible. Since thin, wasted extremities and bony trunk areas offer only small amounts of skin for grafting purposes, economy of skin dictates the use of the previously men-

tioned "patch-grafting" technique if the burn is extensive. Application of continuous sheets of skin is the method of choice for smaller burns.

Improvement in morale and appetite usually follows within a few days of skin-grafting. Additional grafting is carried out as soon as new areas are cleaned up and ready.

In extensive burns where patch-grafting techniques are used, some contractures are inevitable. The release of these contractures represents a much less formidable plastic surgical procedure at a late period when the patient's metabolism is normal and he is once again healthy.

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